

This article was downloaded by: [98.143.143.254]

On: 27 June 2013, At: 05:02

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## International Journal of Environmental Studies

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/genv20>

### Enshrining hunting as a foundation for conservation - the North American Model

Shane P. Mahoney<sup>a</sup> & John J. Jackson III<sup>b</sup>

<sup>a</sup> Sustainable Development and Strategic Science Branch, Department of Environment and Conservation, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, NL, Canada, A1B 4J6

<sup>b</sup> Conservation Force, 3240 S. I-10 Service Road W., Suite 200, Metairie, LA, USA, 70001

Published online: 03 Jun 2013.

**To cite this article:** Shane P. Mahoney & John J. Jackson III (2013): Enshrining hunting as a foundation for conservation - the North American Model, International Journal of Environmental Studies, 70:3, 448-459

**To link to this article:** <http://dx.doi.org/10.1080/00207233.2013.801178>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

# Enshrining hunting as a foundation for conservation – the North American Model

SHANE P. MAHONEY\*† AND JOHN J. JACKSON III†‡

†Sustainable Development and Strategic Science Branch, Department of Environment and Conservation, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, NL, Canada, A1B 4J6; ‡Conservation Force, 3240 S. I-10 Service Road W., Suite 200, Metairie, LA USA, 70001

The hunter-conservationist movement of Canada and the USA arose in the latter decades of the nineteenth century. Many complex forces influenced its emergence as one of the great North American inventions: citizen activism for nature based principally upon sustainable use and vested interest – the *North American Model of Conservation*. Although unrestrained slaughter by commercial hunters had endangered North America's wildlife legacy, regulated hunting became the origin of the world's longest standing continental movement for wildlife protection, use and enhancement.

*Keywords:* North American Model; Hunting; Conservation; International

## European man and wildlife in North America

The first organized European engagement with North American wildlife took place off the coasts of Newfoundland, at some time in the fifteenth century. After the island was discovered, ever greater flotillas gathered in spring to plough the coastal waters, fog enshrouded but virtually clogged with life. Wooden ships and iron men pursued a tradition of slaughter and abuse, leaving in their wake a trail of blood and extinction that altered forever one of the greatest wild abundances the world had ever known. Casting a long shadow, they defined the European view of the new Eden they had miraculously found. Seals, seabirds and cod fish, the flesh and oil of whales all poured into the reeking bellies of ships and ponderously moved eastward in autumn to the hungry nations of Europe, a model of seasonal migration that would exceed in wealth virtually any traffic before or since.

As the great cargoes headed east, the long glance of greed turned westward to the vast breadth of the North American continent and the wild resources of its unknown quarters. The fur trade evolved with all the frenzy of the whale and cod fisheries to seize profit from the lands of diverse races of people who had long relied on the wildlife abundance around them to support their cultures and populations. Europeans took by force or trickery what they desired and used unrestrained violence and virulent disease to ravish those who dared resist. Overcoming the local peoples (the first nations) that had harvested the North

---

\*Corresponding author: Email: [shanemahoney@gov.nl.ca](mailto:shanemahoney@gov.nl.ca)

American landscape for untold generations, the fur trade made the first inroads to the continent's interior, opening it to a melange of speculators and marketers eager for riches.

What followed were breaking waves of citizen-conquerors moving ever west who saw wildlife and all natural resources as theirs by right of might and to which access was limited by two things only: human endurance and ingenuity. Wild resources were there for the taking, and handsome profits were made by supplying the eastern townships, eventually connected by the sinewy steel of the railroad to the ever-expanding frontiers of new abundance. With incredible speed and proficiency, these tidal surges of exploitation laid waste the wildlife capital of North America and brought to their knees the once proud and independent cultures that relied upon it. Unharnessed greed, ignorance and frontier realities made a heady brew and brought staggering costs and opportunities to the interlopers.

### **The conservation awakening**

While the speed of this debauchery outstripped the survival capacity of numerous wildlife species, its perverse scale was ultimately responsible for the emergence of a more-enlightened view. In particular, the grotesque slaughter of the bison, tied to the fate of the Great Plains Indian tribes, was well publicized in journals and heatedly discussed in public forums. Significant reactions helped ferment the view that perhaps there were limits to North America's wild abundance and that there was room for a collective sense of stewardship towards wild animals and the lands they depended upon. Perched precariously on the fault line of this debate were many of the iconic species we cherish in abundance today. Elk, mule deer, wild turkeys, wood ducks, pronghorn antelope, white-tailed deer – they and many other exploited species were likely to follow the bison. Had anything like an Endangered Species Act existed at that time, all of these animals would have been listed as endangered!

Slowly but surely, however, a primordial conservation philosophy was provoked by the reality of wildlife disappearing on such a massive geographic scale. This emergent sensibility was aroused further by expansive landscapes denuded of timber, favoured streams silted to suffocation, and a host of other environmental abuses. Incredibly, the runs of anadromous fish, once unbelievable in their fullness, were only a memory, and skies no longer darkened with passenger pigeons thundering overhead, tens of millions strong. Eventually, eyes could no longer be averted, minds no longer deluded. The great wild inexhaustibility of North America was disappearing.

The recognition of resource crisis helped amalgamate a revised sense of nationhood, both in the USA and in Canada. The citizen-conqueror was eventually replaced by the citizen-steward, a champion for rational use, even preservation when necessary. Initially, slow to take root, this movement was led by a rising class of hunters committed to democratic access to nature, the sustainable use of wildlife for personal rather than market purposes and a European standard of fair chase in hunting. Together these beliefs can be viewed as the first North American conservation ethic. Hunters had standards for the use of natural resources, even if no one else did. In the USA, hunting slaughter became conservation hunting – an example of American inventiveness. Canada's perceptive partnering on this conceptual journey was testimony not only to that country's vigorous engagement with the same tidal influences, but also a prescient sociopolitical departure from looking eastward to Britain for domestic policies.

The social and political movements for wildlife and sustainable use that were thus set in motion eventually coalesced into a systematic arrangement of conventions, policies and

laws that we recognize today as the *North American Model of Wildlife Conservation*. It took 300 years to come to fruition, but it was born from this clash of initial exploitation and eventual realism. The twin notions that North American wildlife was in endless supply and that citizens had a right to harvest all they could were replaced by a sustainable-use approach. Personal responsibility and natural limits became the cardinal precepts supporting a philosophy of resource use. Hunting for personal use was enshrined as the very basis for wildlife recovery, and the central citizen engagement with wildlife that has ensured social and political activism on its behalf.

Since its emergence in the latter part of the nineteenth century, the [formula] *framework* we now designate as the *North American Model* – first articulated by the conservation visionary Valerius Geist [1,2] – has been remarkably successful. It has not only restored and safeguarded wildlife populations, but has also promoted and safeguarded hunting. In addition, it has helped to develop an infrastructure for conservation that is among the most complex and effective in the world. Its scrutiny by domestic and, more recently, international audiences, is a consequence of both its success and the challenges it faces in the twenty-first century.

### **Why the *North American Model* succeeded**

Throughout its history, the *North American Model* has proven resilient to an enormous array of social change. In the last 100 years, North America has experienced great transformations, including human population size and distribution, the economy, land tenure and development, energy and other natural resource consumption, family structure, education levels and work force mobility. These have massively altered the rural fabric of virtually every region of the continent, removing a great majority of citizens from close and continuing contact with the natural world. Yet, the principles of North American conservation remain vigorous. These principles, which have collectively guided the *North American Model's* success for more than 100 years, warrant review.

### ***Principles of the North American Model***

Given the diversity of North American landscapes and regional cultures, it is inevitable that some variations in wildlife conservation approaches exist. Nevertheless, across the continent, the *Model* is guided by seven pragmatic principles [2], known as the *Seven Sisters for Conservation* [3,4]. Each of these is demonstrated by an array of policies, management prescriptions, legislative instructions and organizational diversity that collectively support open citizen access to wildlife as a common property resource. Although they range over a wide intellectual and sociopolitical arena, the following seven principles of regulated hunting and angling have been at the movement's heart since its inception.

#### *Principle 1: maintain wildlife as a public trust resource*

The most fundamental principle in the *North American Model* is the premise that wildlife is owned by no one but held in trust by government for the benefit of all citizens. This notion, applying to other resources in addition to wildlife, is termed the Public Trust Doctrine. Its application to wildlife specifically may be traced in North America to an 1842 US Supreme Court ruling by Chief Justice Roger B. Taney in the celebrated case of *Martin v. Waddell*, which denied a landowner's claim of exclusionary access to oysters on

certain mudflats on the Raritan River in New Jersey. The court held that it was the state, and not individuals, that held sovereignty over navigable water resources, including, in this case, oysters.

In Canada, the legal state ownership and responsibility for wildlife was never as emphatically declared by court decision as in the USA. Instead, Canada's approach emerged more expansively from the English tradition of Crown stewardship, specifically protecting huge tracts of unsettled and unclaimed land inhabited by wildlife and wild creatures as a food supply for its indigenous peoples [5]. While travelling slightly different paths, the USA and Canada were eventually united in their application of public trust stewardship for wildlife and in all remaining principles of the *North American Model*.

The Public Trust Doctrine emerges from case law. There is no single statute; there is no codification. Instead, many laws enacted by states or provinces uphold the premise of public resource ownership. These laws assert the state or province's own property rights towards wildlife. These qualities have far-reaching implications, such as ensuring that all citizens have equal rights towards wildlife resources, that no citizen can have priority of ownership and that no single legislature can repeal court decisions. Furthermore, the ensuing principles (below) of Elimination of Markets in Dead Wildlife, Allocation of Wildlife by Law and the Democracy of Hunting manifestly depend upon the Public Trust Doctrine, making it the philosophical and legal foundation of the North American approach to conservation.

The implications of the *Public Trust Doctrine* are many. Not only does it place great restriction on the privatization of wildlife, it also engenders a system of paid professionals who manage, for the public good and in a coordinated manner, the wildlife resources of Canada and the USA. Under the *North American Model*, ownership of wildlife is not devolved to individuals, landowners or occupiers of land; it is the public's resource. Nevertheless, the principle of public ownership of wildlife is increasingly challenged as private land initiatives often lead to arguments by the landowners themselves to have legal ownership of the wildlife on their property assigned to them.

### *Principle 2: prohibit deleterious commerce in dead wildlife products*

The scale of commercial exploitation throughout the 1800s threatened all North American wildlife of any economic value. Even after game laws were developed, the financial incentives for marketing furs, feathers and other products from dead wildlife remained because the trade was vast and highly lucrative. Thus, the decision to end commercial traffic in dead wildlife was neither easy to conceive nor simple to enforce. This radical assault on the freewheeling slaughter of wildlife came too late for species such as the passenger pigeon, heath hen and Carolina parakeet, but it pulled numerous others back from the brink of extinction.

The era of unrestrained taking of wildlife to supply markets did not end suddenly but was drawn to a close by the collective actions of regional and national legislation that reflected public agitation on behalf of the new conservation ethos. These actions began slowly in the mid-1800s, most prominently over issues within local jurisdictions. Because dead wildlife often supplied distant markets, however, the closure of commercial exploitation required legislation and enforcement at a continental scale. Numerous individuals and organizations played important roles in this developing process, but it was not until the USA passed the Lacey Act of 1900 – which prohibited the transport of illegally taken wildlife across state borders – that North America had federal legislation to curb illicit traffic in wildlife products.

Interestingly, one of the primary targets of the Lacey Act was the illicit trade in bird plumage for the millinery trade. This feathered emphasis helped to make a partnership between bird protectionists and the new class of American hunters known as ‘sportsmen’. These groups combined their conservation efforts to achieve real progress for wildlife protection. With federal legislation achieved, they saw real momentum in their new movement for wildlife conservation and helped solidify one of the greatest original forces in the *North American Model*, that of philosophical inclusivity among disparate groups. Furthermore, this emphasis on avian markets pointed to an issue that would emerge as a core principle of the *Model*: the requirement to treat migratory wildlife as an international resource.

The fur trade is often raised as an obvious contravention of the prohibition on marketing dead wildlife in North America. The practice of taking and selling wild fur was never specifically prohibited, probably because the labour and skill-intensive activity of trapping did not endanger wildlife species to the same extent as the mass killing associated with market hunting [6]. The focus of this principle was to eliminate incentives that elicited *excessive* taking of wildlife, not to eliminate takings per se. Indeed, some other lesser exceptions to the rule also exist (i.e. game meat may be sold for consumption under tightly controlled circumstances). Nevertheless, the end of widespread marketing of dead wildlife remains a dominant principle in the *Model*. The significance of this cannot be exaggerated. In terms of colonial history and long-held frontier attitudes towards wildlife, the suffocation of markets for dead wildlife changed the relationship between people and wildlife in North America. While its origins lay in the exhortations of all concerned citizens, confident now that wildlife indeed belonged to them, hunters and anglers were especially engaged, gaining their voice through publications and hunting club forums [7]. Faced with the disappearance of wildlife through mass killing incentives, hunters and anglers felt they had the most to lose.

### *Principle 3: allocate wildlife democratically and by law*

It bears repeating that despite the drive to eliminate wildlife markets, there was no intention to eliminate wildlife use. Indeed, the intention was just the opposite. This is perhaps the most profound subtlety in the *North American Model*, testifying to the genius of its early proponents. They faced the prospect that hunting would eliminate their quarries. Instead of supporting an end to hunting, however, they *enshrined hunting* as the basis for wildlife recovery, discriminating between hunting for profit and hunting for personal use and recreation. The objective became the pursuit of the animal and a profound engagement with nature, not the pursuit of profit. This conceptualization emerged from the haunting silence of landscapes that had once thundered and thrashed with wildlife abundance, graveyards now that extended by the late 1880s to the vast grasslands of the continental west.

This approach to wildlife recovery inspired *calibration* and led away from preservationist approaches, but it clearly raised the question of *how* to allocate wildlife and ensure its reasonable use. The answer was legislation that would safeguard against the rise of elites and excesses (commercial or otherwise), and give every citizen – hunters and non-hunters alike – equal say and access to wildlife resources. Reflecting the *Public Trust Doctrine*, laws to support sustainable use also safeguarded citizens’ rights, assisted wildlife directly and were crucial to developing an ethic for the conservation of wildlife in North America.

Having their interests secured by law, North Americans developed an extraordinary array of non-governmental foundations, societies, clubs, and conservancies to advocate for

wildlife, conserve habitat and safeguard wildlife experiences, including hunting and angling. Collectively, these organizations have raised billions of dollars in support of wildlife and sustainable use programmes. Some have been the primary mechanisms for wildlife reintroductions on a continental basis. At the individual level, the legal framework for wildlife use and access has inspired broad-based financial and political support that has no equal. The equitability of North American wildlife allocation is the mortar that binds the entire *North American Model*. The citizens truly understand that wildlife is theirs, de facto and de jure. Neither land ownership, nor wealth, nor class position plays a role in the public's proprietorship, as the law decides otherwise.

It is amazing to consider that slaughter could so effectively lead to protection, lawlessness to legal safeguards and excess to moderation. We must view the rise of a conservation ethos as symbolic of civilization and progress, and its legal prescription as a hallmark of nationhood. The nations of Canada and the USA became conjoined in the world's one true continental framework for wildlife conservation, a priceless gift of citizenship. The *Public Trust Doctrine* articulates their sense of rightful inheritance; the laws their sense of freedom and justice.

Still, all is not secure. Many threats to the public trust doctrine have emerged. These include the following: the growing industry associated with game ranching and the sale of wildlife by private landowners; unequal access to wildlife because of private property rights; and escalating costs for many hunting opportunities.

*Principle 4: ensure that wildlife use is for legitimate purpose*

Although laws could govern who might access wildlife, there also had to be guidelines on its appropriate use. The incredible economic value of wild animals was widely appreciated, as was the dependence on it of many rural and native peoples. Furthermore, the origins of the *Model* made devising specific guidelines for how and when wildlife might be taken an absolute necessity. Sentiment alone could not succeed; hard rationality was also required both to safeguard wildlife populations and to ensure their sustainable use. The challenge was to maximize citizen access and opportunity, while at the same time securing the wealth that wildlife embodied.

Both passion and reason appeared abundantly in the Canadian [5] and American [8] literature on such issues, and there was political action at the highest level. The Canadian Prime Minister Sir Wilfred Laurier and the USA President Theodore Roosevelt were directly and influentially involved. The Canadian Commission for the Conservation of Natural Resources, founded in 1909, and the American National Conservation Commission of 1908 were vibrant testimony to the political priority that conservation had attained. The North American Conservation Conference convened by President Roosevelt at the White House in 1909 and attended by Canadian and American colleagues powerfully illustrated the continental dimensions of the debate. No gathering on wildlife conservation of such stature has been held since.

While these endeavours helped formulate a wide array of legal and policy directives, the issue of wildlife use was very much at the centre of things and had been since the rise of market hunting. Eventually, the legitimate taking of animals in North America came to mean killing for food and fur, self-defence and property protection. Notably, all these specifications help tackle the issue of wastage of animals, something that has been central to North American hunting policy and law. The image of thousands of bison carcasses rotting in the sun has cast a long shadow over the conscience of North Americans. Today, perhaps

no breach of ethics in hunting is more despised than the wanton killing of an animal and the wastage of its meat.

This principle of the *North American Model* has also eliminated other frivolous or wasteful practices, such as the killing of shore and wading birds for their feathers (to supply the fashion industry), and elk for their canine teeth (ivory for the jewellery market). It has led to the emphasis on harvesting wild animals as a source of high-quality meat that is a signature motivation of hunting in North America.

*Principle 5: preserve hunting opportunity for all*

In addition to the general application of law to wildlife use and disposition, the *North American Model* emphasizes the issue of hunting. This is natural as hunters and anglers were the leading advocates for conservation reform. While the North American hunting movement borrowed from European experience in matters of 'fair chase' and 'sport' terminology, its support for every person's access to and responsibility for wildlife was distinctly New World and revolutionary. Hunting and the ruling class were no longer exclusively conjoined. Everyone had a right and a responsibility for wildlife.

This democratic principle has resulted in the participation by hunters from all walks of life in issues that not only affect their cherished activities, but the sustainability of wildlife for its own sake. The result is that hunters and anglers have great political influence in North America, and especially in the USA. The *North American Model* has ensured that hunters are a force to be reckoned with, despite representing only about 6 per cent of the North American population (13.7 million hunters in US in 2011). Hunting enjoys widespread support from the general public in North America. A recent survey in the USA, for example, shows that 77.6 per cent of citizens support legal hunting [9], an increase in four percentage points from 1995.

While this principle of the *Model* might seem preferential by emphasizing a minority of the citizenry, there has never been an attempt to restrict the general public's access to and enjoyment of wildlife. On the contrary, that was encouraged. Thus, while hunting is clearly a critical component of the *North American Model's* history and success, it is but one of many activities concerning wildlife that are encouraged, regulated and protected. All citizens interact with wildlife within a framework prescribed by a network of policies and laws, yet no other activity in nature is as closely monitored, regulated and scrutinized as hunting.

*Principle 6: recognize and manage wildlife as an international resource*

The special status of migratory wildlife was recognized early in North America, but once again, it was hard reality that awakened the conservation imperative [7]. The drastic decline in fur seal populations on the Pribilof Islands as a result of pelagic and land based sealing, and the relatively late decline in waterfowl as Canadian and American railroads invaded the great prairie nurseries and brought spring duck shooters in droves, led to collaborations in conservation never before witnessed. The 1911 Fur Seal Treaty and the Migratory Bird Protection Act of 1916 provided the legal frameworks to ensure consistency in Canadian and American approaches to the conservation of these species. Russia and Japan were also signatories to the Fur Seal Treaty.

These treaties enshrined in law the notion that wildlife knows no borders, but that its significance as an international resource is such that the highest of legal protocols are



warranted in its management and protection. The inclusion of wildlife in treaty law was a significant development showing that North American conservation had matured well beyond ensuring equal access to wildlife and the prescription of hunting privileges and practices. The conservation of wild animals had become the core ethic of the movement, and this responsibility was of national significance, a matter of national pride.

The principle of trans-boundary responsibility and coordinated management of wildlife is ingrained in the *North American Model* and is responsible for a dizzying array of ancillary policies, committees, colloquiums, strategic approaches and publications in both Canada and the USA. This active networking helps ensure that governments at all levels remain cognizant of their treaty responsibilities.

The cooperation achieved through these agreements also indicates the sinewy strength of the *Model*. In recent years, under the North American Waterfowl Management Plan, millions of dollars derived from hunting activity in the USA are diverted to conservation programmes for waterfowl enhancement in Canada! Thus, provincial and state waterfowl managers not only share their expertise and talents and coordinate their policies, but funds are actually transferred between the *Model's* founding nations to where the money is needed, regardless of where it is generated. Such arrangements are only possible where mutual trust and commitment exist. The long success of the *North American Model* has made such conditions secure. Next to its powerful inclusivity, perhaps the second most important characteristic of the *Model* is the trust in which it is held.

*Principle 7: ensure that science is the basis for conservation policy*

During the nineteenth century, public interest in natural history and science flourished in North America, as it did in many European nations. The great explorations to the Arctic and Pacific opened a wondrous window, revealing unknown landscapes and creatures that fascinated the new North Americans. In the early- to mid-1800s, the writings of James Fenimore Cooper, John James Audubon, and other notable hunter-naturalists became increasingly popular in both Canada and the USA, where the image of frontiersman as knowledgeable naturalist seeped into the collective psyche. Mid-century movements – such as the Hudson River School of visual art and American Transcendentalism, inspiring the writings of Emerson and Thoreau – strengthened this enthusiasm. Knowledge of the natural world became a currency of broad exchange.

Thus, it was not surprising that early in the *North American Model's* evolution, science was identified as crucial to safeguarding wildlife and ensuring the sustainable use of it. Indeed, this became apparent in natural resource matters generally, including agriculture, forestry and fishery issues. President Theodore Roosevelt, an icon of North American conservation and a keen observer of wildlife throughout his life, helped this process immeasurably. Roosevelt's emphasis on empirical knowledge gained through direct field experience, and his admiration for those who pursued such efforts, has reverberated to the present day. While hardly alone in this appreciation, Roosevelt as USA President was in a position to do something about it. He was also deeply committed personally to the idea of science-based conservation. Indeed, the premise that science should form the basis of wildlife conservation and management is known as the *Roosevelt Doctrine*.

Still, the conservation movement of late-nineteenth and early-twentieth century North America remained largely ignorant of the ecological processes that affected wildlife abundance. Passion and knowledge were, therefore, often available in unequal supply and marched sometimes to disastrous results, albeit with good intentions. The famed case of

'population engineering' to 'protect' mule deer on Arizona's Kaibab Plateau provides a powerful example [7]. President Roosevelt in 1906 banned deer hunting in the region because he was concerned that the mule deer population was in decline. The following year, the Forest Service began killing thousands of coyotes, wolves, bobcats and other natural predators. These simple 'solutions' of eliminating hunting and natural predators had what are now predictable results. The mule deer population exploded and severely overgrazed its range. Animals began to starve, sicken and die by the tens of thousands, their emaciated carcasses a grim testimony to simplicity's wager in a world of evolving odds.

Thus, although Roosevelt and others articulated the vision of science-based wildlife management in the late 1800s, it was not until the 1930s and the writings of Aldo Leopold that this principle of the *Model* was effectively exercised for wildlife in a coordinated way [10]. Quickly thereafter, wildlife science became essential to the *North American Model*, not only in concept but in practice as well. The profession of wildlife scientist and the specific discipline of wildlife management were thus born. This coordinated application of science to North American wildlife programmes is an enduring legacy of the *Model*. It is a safeguard against the politicization of wildlife policy and has generated an incredible knowledge base upon which to evaluate best practices in conservation.

The diverse academics and officials who secure this knowledge require massive financial commitment to wildlife research. Such funding is another success of the *Model*, but its appropriation requires constant attention and encouragement. Furthermore, the communication of scientific knowledge remains a challenge. Nevertheless, wildlife science remains an integral and enduring principle of the *North American Model*.

### **Achievements of the North American approach**

Collectively, the seven principles of the *North American Model* have created one of the great achievements in Canadian and American societies. They have not only helped recover and restore a wild abundance to the continent, but developed a stable, well-funded and well-supported conservation programme that has been effectively managing wildlife for over a century. Along the way they helped create an astounding economy that delivers significant employment and capital while still protecting the resource. Even further, these principles called into being a new profession responsible for the science and management of wildlife populations and their habitats and gave rise to institutions of learning and programmes of knowledge previously unknown. For instance, a recent Wildlife Society survey of wildlife education in North America found that university and college wildlife programmes exist in virtually every state and province, with specialized degree programmes in wildlife biology and management at no fewer than 500 schools [11].

The *North American Model* has also spawned international treaties, systems of land protection, incentives to landowners to safeguard wildlife and many non-profit entities that focus on every aspect of conservation and exercise great energy and acumen in the complex world of conservation politics. Efforts on behalf of wildlife conservation have included significant fundraising in both the public and private sectors, and a proliferation of monetary strategies that include taxation and philanthropic donations of immense scale and variety. All of this is devoted to protecting an incredible range of biological diversity, from songbirds to grizzly bears, pelicans to panthers. So much of this achievement may be

traced to the efforts of a continental movement by hunters (and anglers) to safeguard the wild species they cherish and pursue.

### ***North American Model* principles and international conservation efforts**

Given these conservation achievements, it is not surprising that certain aspects of the *North American Model* have appeared in other parts of the world. From national parks and wilderness areas to professional civil service branches responsible for wildlife conservation, there are replicates of individual components of the *Model* now in many countries in Africa and Asia. These efforts, of course, reflect political, economic and cultural contexts that differ widely from North America and from one another. Obviously, no entire duplication of the *Model* has occurred. For conservation, the emphasis must be to borrow the best of human experimentation for wildlife's benefit. One size does not fit all, even if motivations are identical.

While today the challenges to the *North American Model* are often the focus of conservation discussions [4], it is important to recognize that both within North America and around the world the *Model* is acknowledged as having brought to fruition a programme of incentive-based conservation that relies on recreational hunting to achieve its goals. For the future of hunting, this is an incredibly important realization. It reflects what hunters, including those like Theodore Roosevelt and Aldo Leopold, had long maintained – that lawful hunters and their personal engagements with wildlife could be a significant force for conservation. In accepting this, a growing number of international entities have adopted hunting within a 'sustainable use' concept that the founders of North American conservation conceived over a century ago, under the term 'wise use'.

Conceptually, the international sustainable use movement has strongly endorsed democratic, incentive-based engagement as essential to conservation success, a notion at great odds with many colonialist approaches to wildlife use in arenas such as Africa and Asia – and, indeed, North America! Conspicuously, this modern idea of democratic engagement was the foundation of the North American approach. Eventually, however, international social and political efforts have coalesced into some recognizable pattern of conservation application and, often with recreational hunting within its ranks. The birth of the *North American Model* was itself such a process of eventual emergence, with hunting the very force that led to its improbable rise.

### **Some North American contributions to international efforts**

In North America, the energy for conservation was supported in part by the growth in domestic hunter numbers, particularly big game hunters, which followed the continental recovery of elk, deer, pronghorn and other game species. These hunter numbers increased hugely after the 1950s, as wealth and leisure time increased and more hunters and anglers could travel out-of-state and out of the country to engage in their traditional activities. This growth in hunter numbers spilled over into Africa, Asia and around the world, where tourism hunting expenditures helped provide needed revenue for management infrastructure and incentives for wildlife conservation in developing regions and countries.

In addition, the international acceptance of a user-pay (purchase of licenses, tags, and permits and the payment of excise taxes on equipment), incentive-based conservation

system was often fostered by professionals educated in wildlife management at American and Canadian universities, programmes of study that directly descended from the *Model's* early search for scientific foundations. The experience of foreign students with North American wildlife abundance and conservation principles often contrasted with situations in their own countries, where they sought to improve wildlife programmes and local economies while building on local knowledge and traditions. Meanwhile, the US Fish and Wildlife Extension Service began sharing its expertise overseas, and American NGOs began putting hunting tourism dollars to work on practical conservation efforts in various African countries. By the 1980s, the United States Agency for International Development had begun funding programmes such as the Communal Areas Management Programme for Indigenous Resources in Zimbabwe, the Living in a Finite Environment Project in Namibia, and the Administrative Management Design programme in Zambia, all of which use hunting tourism as a means of assisting indigenous communities and local economies.

In the early 1990s, the concept of 'sustainable use' gained widespread acceptance. Soon international hunting and successful predecessor systems such as that in North America were seen as proven examples of a user-pay approach that both conserved the wildlife resource and was self-sustaining. Nearly, a century strong, the *Model* itself had witnessed massive human population increases and social change, yet continued to conserve wildlife and foster gargantuan economies directly dependant on the resource. Such achievement and longevity were obviously relevant to a world in search of conservation solutions.

## Conclusions

While appearing paradoxical to some, and unacceptable to others, the integration of hunting within conservation practices has been recognized internationally as a successful approach under specific circumstances, offering realistic long-term solutions to wildlife depletion and landscape impoverishment.

In North America, hunting for personal engagement with and use of wildlife emerged over a century ago as an alternative to widespread depletions caused by market hunting and corporate interests. Over this long period of time, encompassing great social and ecological change, the North American hunting community has been a primary supporter of a lawfully based and sustainable approach to wildlife use and conservation known as the *North American Model*. This approach has seen the return of many hunted species from the brink of extinction.

While not necessarily transferable to other jurisdictions, this continental approach to conservation through sustainable use remains an important example to both the citizens of North America and the world at large. Conservation can be effective and hunting can play an important role in wildlife recovery and protection.

## References

- [1] Geist, V., 1995, North American policies of wildlife conservation. In: V. Geist and I. McT. Cowan (Eds.) *Wildlife Conservation Policy* (Calgary: Detselig Enterprises Ltd), pp. 75–129.
- [2] Geist, V., Mahoney, S.P. and Organ, J.F., 2001, Why hunting has defined the North American Model of wildlife conservation. *Transactions of the North American Wildlife and Natural Resources Conference*, **66**, 175–185.
- [3] Mahoney, S.P., 2004, The seven sisters: pillars of the North American wildlife conservation model. *Bugle Magazine*, **21**(5), 141–144.

- [4] Mahoney, S.P., 2009, Recreational hunting and sustainable wildlife use in North America. In: B. Dickson, J. Hutton, and W.M. Adams (Eds.) *Recreational Hunting, Conservation and Rural Livelihoods: Science and Practice* (Hoboken, NJ: Wiley-Blackwell), pp. 266–281.
- [5] Hewitt, C.G., 1921, *The Conservation of the Wildlife of Canada* (New York: Charles Scribner's Sons), pp. 1–334.
- [6] Geist, V., 1988, How markets in wildlife meat and parts, and the sale of hunting privileges, jeopardize wildlife conservation. *Conservation Biology*, **2**, 15–26.
- [7] Trefethen, J.B., 1975, *An American Crusade for Wildlife* (New York: Winchester Press), pp. 1–421.
- [8] Hornaday, W.T., 1913, *Our Vanishing Wild Life* (New York: New York Zoological Society), pp. 1–428.
- [9] Duda, M.D., Jones, M.F. and Criscione, A., 2010, *The Sportsmen's Voice: Hunting and Fishing in America* (State College: Venture Publishing Inc., Responsive Management), pp. 1–259.
- [10] Leopold, R.A., 1933, *Game Management* (New York: Charles Scribner's Sons), pp. 1–481.
- [11] Baydeck, R., 2009, The Wildlife Society Ad Hoc Committee on Collegiate Wildlife Programs. Summary Final Report to the Wildlife Society Council. Available online at: [http://joomla.wildlife.org/documents/Ad\\_Hoc\\_Collegiate\\_Wildlife.pdf](http://joomla.wildlife.org/documents/Ad_Hoc_Collegiate_Wildlife.pdf) (accessed 23 April 2013).